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Effects of postnatal exposure to a PCB mixture in monkeys on nonspatial discrimination reversal and delayed alternation performance.

[Rice DC](#), [Hayward S](#).

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Behavioral impairment as a consequence of PCB exposure beginning in utero has been reported in both humans and animals. The present study assessed the behavioral consequences of postnatal exposure to PCBs. Male monkeys (*Macaca fascicularis*) were dosed from birth to 20 weeks of age with 7.5 micrograms/kg/day of a PCB mixture representative of the PCBs typically found in human breast milk (8 monkeys) or vehicle (5 monkeys). At 20 weeks of age, PCB levels in fat and blood of treated monkeys were 1.7-3.6 ppm and 2-3 ppb respectively. Beginning at three years of age, monkeys were tested on a series of nonspatial discrimination reversal problems followed by a spatial delayed alternation task. Treated monkeys exhibited decreased median response latencies and variable increases in mean response latencies across the three tasks of the nonspatial discrimination reversal. There were no group differences on accuracy of performance, although some treated individuals made more mistakes at the beginning of the experiment than did control monkeys. On the delayed alternation task, the PCB-exposed group displayed retarded acquisition of the task and increased errors at short delay values, which were tested at the beginning of the experiment. There was no increase in the total number of errors in treated monkeys at long delay values. Treated monkeys engaged in more perseverative responding than controls over the entire course of the experiment, in some instances even in the absence of an increase in overall error rate. These findings are interpreted as a learning/performance decrement rather than an effect on spatial memory per se. The results of this study suggest that PCB exposure which is limited to the early postnatal period and results in environmentally-relevant body burdens produces long-term behavioral impairment.

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